Lake Forest

Safety and Noise Element

General Plan

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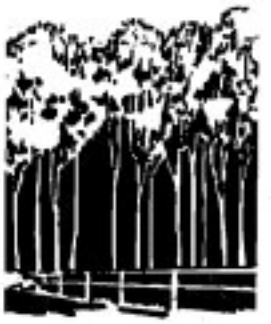
INTRODUCTION



The Safety and Noise Element addresses public safety and quality of life issues. Natural events such as flooding and earthquakes can endanger property and human life while hazardous material use, crime and other human activities can impact community security. High noise levels can cause stress and irritation and must be controlled to preserve community quality. Residents can be protected from potential hazards by identifying threatening situations and taking steps to limit such situations in populated areas. Developing effective strategies to reduce excessive noise is essential for a safe and harmonious living and working environment.

PURPOSE OF THE SAFETY AND NOISE ELEMENT

The Safety and Noise Element is a comprehensive program to identify and temper environmental factors that potentially threaten community health and safety. Noise and public safety are key factors in the quality of life in a community. By addressing safety and noise early in the planning process, the City can avoid the creation of critical situations. The Safety and Noise Element contains policies and programs to regulate existing and proposed development located in hazard-prone areas. Education of City staff and residents about emergency preparedness is also addressed. Guidelines are established to protect residents from excessive noise and ensure that noise-generating uses will be separated from uses where quiet conditions are valued.

SCOPE AND CONTENT OF THE SAFETY AND NOISE ELEMENT

The noise and safety components of this Element satisfy the requirements of state planning law. The safety component complies with the requirements for the General Plan public safety element mandated in Government Code Section 65302(g). According to the state requirements, the safety element must address the following hazards if they pertain to Lake Forest:

- Seismically induced conditions, including surface rupture, ground shaking, ground failure, tsunami and seiche;
- Slope instability leading to mudslides and landslides;
- Subsidence and other geologic hazards;
- Flooding;
- Wildland/urban interface fires; and
- Evacuation routes.

Additional public safety hazards are identified in the Master Environmental Assessment. Consequently, hazardous materials, crime and aircraft overflight are also addressed in the Safety and Noise Element.

The noise component complies with the revised state guidelines for the General Plan noise element mandated by the State of California Government Code Section 65301(f) and Health and Safety Code Section 46050.1. Future noise conditions from short- and long-term growth are quantified as noise exposure contours. This noise information serves as the basis to develop guidelines for compatible land uses.

The Safety and Noise Element is comprised of three sections: 1) Introduction; 2) Issues,

Goals and Policies; and 3) the Safety and Noise Plan. In the Issues, Goals and Policies section, major issues pertaining to noise sources and hazardous conditions are identified, and related goals and policies are established. The goals are overall statements of the City's desires and are comprised of broad statements of purpose and direction. The policies serve as guides for reducing the threat from natural and human activity hazards; maximizing community emergency preparedness; and diminishing or avoiding adverse noise effects on residents. The Plan explains how the goals and policies will be achieved and implemented. Specific implementation programs for the Safety and Noise Element are contained in the General Plan Implementation Program.

RELATED PLANS AND PROGRAMS

There are a number of existing plans and programs that directly relate to the goals of the Safety and Noise Element. These plans and programs have been enacted through state and local legislation and are administered by agencies with powers to enforce state and local laws.

California Environmental Quality Act (CEQA) and Guidelines

The California Environmental Quality Act was adopted by the state legislature in response to a public mandate for a thorough environmental analysis of projects that might adversely affect the environment. The provisions of the law, review procedure and any subsequent analysis are described in the CEQA Law and Guidelines as amended in 1998. Both excessive noise and public safety hazards are recognized as environmental impacts under CEQA. Continued implementation of CEQA will ensure that City officials and the general public assess and mitigate potentially significant noise and public safety impacts from private and public development projects.

California Noise Insulation Standards (Title 24)

The California Commission of Housing and Community Development officially adopted noise insulation standards in 1974. In 1988, the Building Standards Commission approved revisions to the standards (Title 24, Part 2, California Code of Regulations). As revised, Title 24 establishes an interior noise standard of 45 dB for residential space (CNEL or Ldn). Acoustical studies must be prepared for residential structures to be located within noise contours of 60 dB or greater (CNEL or Ldn) from freeways, expressways, parkways, major streets, thoroughfares, rail lines, rapid transit lines, or industrial noise sources. The studies must demonstrate that the building is designed to reduce interior noise to 45 dB or lower (CNEL or Ldn). New residential structures constructed in the Planning Area are subject to Title 24 standards.

Alquist-Priolo Special Studies Zones Act

Pursuant to the Alquist-Priolo Special Studies Zones Act, the state Geologist delineates special study zones along traces of potentially and recently active major faults. Affected cities and counties must inform the public of the special studies zones, which usually are one-quarter mile or less in width. Information about special studies zones can be referenced in local General Plans and on other local maps. Proposed development plans within these zones must be accompanied by a report that describes possible surface rupture from a registered geologist.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act requires the state Geologist to compile maps identifying seismic hazard zones. The state Mining and Geology Board established policies and criteria identifying the responsibilities of state and local agencies for development in seismic hazard areas. Approval of development on a site within

seismic hazard zones requires the preparation of a geotechnical report and local agency consideration of the policies and criteria established by the Mining and Geology Board (Public Resources Code Section 2690 et. seq.). Seismic safety maps were considered during the preparation of this element.

Landslide Hazard Identification Program

Under the Landslide Hazard Identification Program, the state Geologist is required to prepare maps of landslide hazards within urban and urbanizing areas. Public agencies are encouraged to use these maps in land use planning and decisions about building, grading and development permits (Public Resources Code Section 2687 (a)). Landslide hazards were considered during the preparation of this element.

Cobey-Alquist Flood Plain Management Act

The Cobey-Alquist Flood Plain Management Act encourages local governments to plan, adopt and enforce land use regulations for flood plain management, as well as to identify requirements for receiving state financial assistance for flood control. The Safety and Noise Element identifies flood zones and methods to avoid flood hazards.

Hazardous Waste Management Plan

The Orange County Fire Department, which responds to all hazardous or toxic spill incidents in the Planning Area, is presently preparing a Hazardous Materials Area Plan. The Plan will guide all emergency response procedures for hazardous materials incidents. All facilities and personnel of the County and affected cities are organized in the Plan to effectively respond to hazardous material emergencies. Hazardous materials and emergency preparedness are discussed in this element.

San Onofre Nuclear Generating Station (SONGS)

The San Onofre Nuclear Generating Station is located near the southern boundary of Orange County. The federal and state governments have created three levels of emergency zones surrounding nuclear facilities:

- Emergency Planning Zone: Planning efforts within this zone include emergency sheltering or evacuation;
- Public Education Zone: Lake Forest is located within this zone and educational programs are focused in this zone to ensure that residents are prepared for any problems with the facility; and
- Ingestion Pathway Zone: This zone is created to avoid the ingestion of deposited radioactive materials by humans and livestock.

Southern California Edison, which operates SONGS, will provide notification to all off-site jurisdictions within 15 minutes of declaration of any emergency. At this point, the City will implement procedures established in the Emergency Preparedness Plan (which is described below).[1]

City of Lake Forest Noise Ordinance

The City has adopted the County of Orange Noise Control Ordinance, which establishes interior and exterior noise standards for residential areas. The ordinance provides controls for excessive and annoying noise from stationary sources such as industrial plants, pumps, compressors and refrigeration units. In addition, specific noise standards for daytime and nighttime hours are provided. Certain noise sources are prohibited and the ordinance establishes an enforcement process.

[1]General Plan Amendment 00-01, dated May 2, 2000.

Noise ordinance requirements are identified in this element. The City Noise Ordinance does not apply to railroad activities occurring within the OCTA right-of-way (operation, maintenance, construction) or permitted hours for such activities.

City of Lake Forest Emergency Preparedness Plan

The City is presently preparing an Emergency Preparedness Plan. Until the Plan is approved, the City has adopted the County of Orange Plan for interim use. Additionally, an emergency information guide that identifies City personnel, equipment and facilities to effectively deal with emergency situations is being utilized. An integral component of this element is emergency preparedness planning.

City of Lake Forest Codes

The City has adopted the 1991 Uniform Building Code, 1991 Uniform Mechanical Code and 1991 National Electrical Code which contain structural requirements for existing and new buildings. The codes are designed to insure structural integrity during seismic and other hazardous events and prevent personal injury, loss of life and substantial structural damage. To protect public safety, planned development in Lake Forest will be subject to these structural codes.

RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

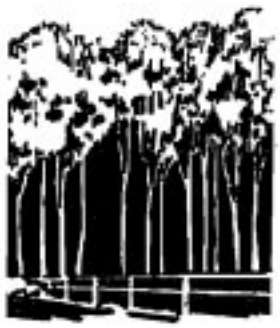
The Safety and Noise Element must be consistent with the other General Plan elements. Each element is independent and all the elements comprise the General Plan. All elements of the General Plan are interrelated to a degree, and certain goals and policies of each element may also address issues that are the primary subjects of other elements. The integration of overlapping issues throughout the General Plan elements provides a strong basis for implementation of plans and programs and achievement of community goals. The Safety and Noise Element relates most closely to the Land Use and Circulation Elements.

Policies and plans in the Safety and Noise Element are designed to protect existing and planned land uses identified in the Land Use Element from public safety hazards and excessive noise. Potential hazards and noise sources are identified in the Safety and Noise Element, and the programs are established to avoid or mitigate public safety and noise impacts from planned development. Concurrently, the Land Use Element contains policy to ensure that environmental conditions, including hazards and noise, are considered in all land use decisions. The distribution of residential and other sensitive land uses on the Land Use Policy Map is designed to avoid areas where hazardous or noisy conditions have been identified.

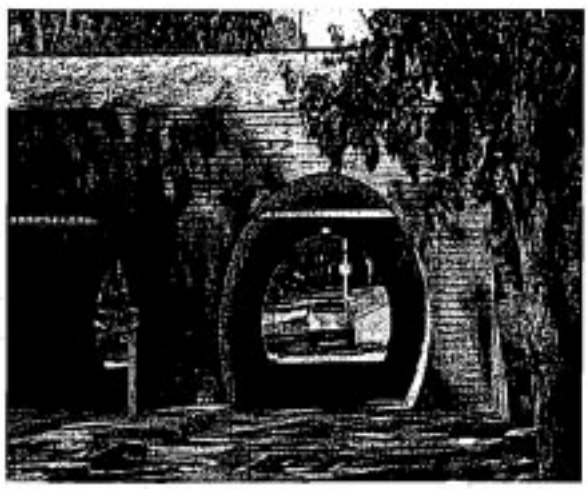
The noise component of the Safety and Noise Element is inextricably linked to the transportation policies in the Circulation Element. Transportation noise is largely responsible for excessive noise levels in certain locations in urban environments. The projected noise distribution identified in the Safety and Noise Element directly corresponds to the Circulation Plan. Both the Safety and Noise and Circulation Elements contain policies and plans to minimize the effects of transportation noise on existing and planned land uses. Noise exposure will be a key consideration when locating and designing new arterials.

The noise component of the Safety and Noise Element also relates to the Recreation and Resources Element. Excessive noise can diminish enjoyment of parks and open space, and noise information should be considered in planning new recreational areas. Open space areas can be used to buffer noise-sensitive land uses from noise producers.

ISSUES, GOALS AND POLICIES



Five major issues are addressed by the goals, policies and implementing actions of the Safety and Noise Element. The issues include: (1) reducing risks associated with natural hazardous conditions, such as geologic conditions, seismic activity and flooding and reducing risks attributable to human-related hazardous conditions, such as aircraft overflights, hazardous materials, fire, and criminal activity; (2) preparedness for emergencies conditions to minimize impacts and reduce recovery time; (3) avoidance of the effects of noise through proper planning and correction of existing noise problems; (4) minimizing the effects of transportation- related noise; and (5) minimizing the effects of non-transportation noise. Each issue and the related goals, policies and implementation actions are identified and discussed in the following section.



NATURAL HAZARDS AND HUMAN ACTIVITY HAZARDS

The risk associated with certain natural hazards, such as geologic conditions, seismic activity, fire and flooding can be minimized through appropriate planning and preparedness actions. The risk of exposure to such hazards can be reduced to acceptable levels through proper development engineering and building practices.

Certain human activities, such as flying, use of hazardous or toxic materials, use of combustibles, and criminal actions can expose the population risk. The risk of exposure to hazards associated with human activity can be reduced to acceptable levels through proper planning and regulation of human activities.

GOAL 1.0: Reduction in the risk to the community from hazards associated with geologic conditions, seismic activity and flooding.

Policy 1.1: Reduce the risk of impacts from geologic and seismic hazards.

Policy 1.2: Protect the community from flooding hazards.

GOAL 2.0: Protection of the community from hazards associated with aircraft overflights, hazardous materials use, fire, and ground transportation.

Policy 2.1: Reduce the risk to the community from aircraft overflights.

Policy 2.2: Reduce the risk to the community from the use and transport of hazardous materials.

Policy 2.3: Reduce the per capita production of household hazardous waste in Lake Forest in concert with the County of Orange plans for reducing hazardous waste.

Policy 2.4: Reduce the risk to the community from fire.

Policy 2.5: Reduce the risk from ground transportation hazards, such as rail and roadway systems.

GOAL 3.0 Protection of citizens and businesses from criminal activity.

Policy 3.1: Provide substantive levels of police protection.

Policy 3.2: Improve public awareness of ways to reduce criminal activity and Orange County Sheriff's Department responsiveness (Neighborhood Watch, improved communication and education methods).

Policy 3.3: Provide an effective approach to reduce graffiti.

EMERGENCY PREPAREDNESS

Proper preparation for major emergencies is an essential action to minimize the disruption, personal injury, and property damage associated with such events. Preventative measures and preparatory responses before an emergency occurs will hasten recovery from these emergencies.

GOAL 4.0: Improved ability of the City to respond to natural and human-related emergencies.

Policy 4.1: Support the development of local preparedness plans and multi-jurisdictional cooperation and communication for emergency situations.

Policy 4.2: Educate residents and businesses regarding appropriate actions to safeguard life and property during and immediately after emergencies.

NOISE AND LAND USE PLANNING

Certain portions of the planning area are subject to high noise levels. The consideration of the sources and recipients of noise early in the land use planning process is an effective method of minimizing the impacts of noise on the community's population. Areas already impacted by noise can also have noise reduced through rehabilitative improvements.

GOAL 5.0: Consideration of the effects of noise in land use planning.

Policy 5.1: Utilize noise/land use compatibility standards as a guide for future planning and development decisions.

Policy 5.2: Provide noise control measures, such as berms, walls, and sound attenuating construction in areas of new construction or rehabilitation.

TRANSPORTATION NOISE

Transportation-related noise is a primary factor affecting the overall quality of life for much of Lake Forest. Reduction of transportation-related noise is an effective approach to dealing with the detrimental effects attributable to excessive noise levels.

GOAL 6.0: Reduction in the impact of transportation-related noise.

Policy 6.1: Reduce noise impacts to sensitive land uses from transportation noise sources.

NON-TRANSPORTATION NOISE

Noise sources that are not directly related to transportation include construction noise, manufacturing noise, and property maintenance activities. Such noise sources may be controlled to minimize any exposure to excessive noise levels.

GOAL 7.0: Reduction in non-transportation noise impacts.

Policy 7.1: Minimize the impacts of noise-producing land uses and activities on noise-sensitive land uses.

RELATED GOALS AND POLICIES

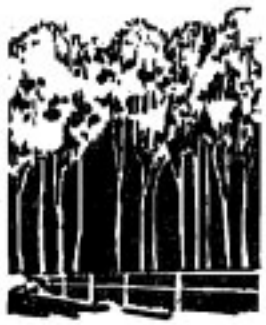
The goals and policies described in the Safety and Noise Element are related to and support subjects included within other General Plan elements. In turn, many goals and policies from the other elements directly or indirectly support the goals and policies of the Safety and Noise Element. These supporting goals and policies are identified in Table SN-1.

TABLE SN-1
SAFETY AND NOISE
RELATED GOALS AND POLICIES BY ELEMENT

Safety and Noise Issue Area	Related Goals and Policies by Element					
	Land Use	Housing	Circulation	Recreation and Resources	Safety and Noise	Public Facilities/ Growth Management
Natural Hazards and Human Activity Hazards	3.1, 4.2, 6.1, 6.2	2.1	2.1	2.1, 2.4		3.1, 3.2, 4.1
Emergency Preparedness			1.1, 1.2, 1.3, 2.1	5.3		
Noise and Land Use Planning	3.1, 3.5, 4.1, 4.2, 5.6	1.3	2.1, 2.3			
Transportation Noise			1.1, 1.2, 1.3, 2.1, 2.3			7.1
Non-Transportation Noise	3.2					

[1]General Plan Amendment 96-01, dated October 29, 1996.

SAFETY AND NOISE PLAN



As in most urban settings, natural conditions and human activities occur in Lake Forest which can impact the quality of life. The goals and policies in the previous section establish an aggressive agenda to safeguard community health from natural and human activity hazards and excessive noise. The Safety and Noise Plan defines the City approach for achieving the agenda and generally outlines action programs. The Safety and Noise Element Implementation Program, which is part of the General Plan Implementation Program, is an extension of the Safety and Noise Plan and contains specific programs that the City will enact to protect community well-being.

NATURAL HAZARDS AND HUMAN ACTIVITY HAZARDS

Risk reduction is essential for creating an attractive and healthful urban environment for residents and businesses. The Lake Forest Planning Area is characterized by diverse topographic features and development patterns. The western portion of the Planning Area is relatively flat and urbanized while the northeastern portion contains steep slopes and is primarily in a natural state. The diverse character of the Planning Area results in a mix of natural conditions and conditions created by humans that could pose hazards to public safety. In addition, the juxtaposition of Lake Forest with Cleveland National Forest pose other hazards.[1] There are many steps the City can take to minimize hazards and protect public health and private property.

This section of the Safety and Noise Plan identifies the City approach for reducing potential hazards from natural conditions and human activities. Natural hazards include geologic conditions, seismic activity and flooding. Human activity hazards include aircraft overflights, hazardous materials, fire and crime.

Geologic Hazards

The Planning Area is located in a region with active seismic faults and is therefore subject to risks and hazards associated with earthquakes. Seismic activity poses two types of hazards: primary and secondary. Primary hazards include ground shaking, ground displacement, and subsidence and uplift from earth movement. Primary hazards can induce secondary hazards, including ground failure (lurch cracking, lateral spreading and slope failure), liquefaction, water waves (tsunamis and seiche), movement on nearby faults (sympathetic fault movement), and dam failure. Large earthquakes of magnitude 7.0 and greater on the Richter scale are expected to occur along at least one of the active faults in the region within a time period equivalent to the historic record.

No known active fault exists within the Planning Area. Consequently, the potential for ground rupture is low and no Alquist-Priolo Special Study Zone has been established by the state. In addition, the potential for liquefaction from seismic activity is low. While seiche could occur in the created lakes, the Planning Area will not be subject to inundation from dam failure. Slope failure from ground shaking could occur on some of the hillsides in the Planning Area. Ground settlement could occur on sites within a short distance of alluvial valleys or where a site is partially on bedrock formation, or partially on fill with inadequate internal compaction or consolidation of unsuitable soils. These geologic hazards, combined with

[1] General Plan Amendment 00-01, dated May 2, 2000.

ground shaking, can result in substantial structural damage and related loss of life and personal injury.

The City will enact programs to reduce geologic hazards to protect public safety. To minimize hazards from earthquakes and other geologic hazards, the most recent state seismic guidelines and guidelines for other geologic hazards will be implemented for structural design. The stability of residential structures, critical structures and vital emergency facilities will be given particular attention. During the review of development proposals involving slopes, grading, unstable soils and other hazardous conditions, surveys of soil and geologic conditions by a state-licensed engineering geologist will be required. Based on the results of the survey, design measures will be incorporated into projects to minimize geologic hazards. Open space easements will be considered to avoid geologic hazards.

Earthquake preparedness is one of the best methods to minimize human suffering and property damage and accelerate recovery. The City will promote earthquake preparedness in the community with periodic earthquake awareness programs. The programs will be coordinated with emergency service providers and school districts to maximize public participation and effectiveness.

Flood Hazards

Five surface water streams traverse the Planning Area: Also Creek, Serrano Creek, Borrego Canyon Wash and two smaller creeks.[1] Floods along any watercourse are inevitable. The potential for flooding in semi-arid environments such as Orange County is increased due to the variation and unpredictability in the amount and intensity of rainfall. While floods are generally perceived as potential hazards, the degree of hazard associated with a flood is related to the type of land uses in the Floodplain. For instance, periodic flooding can benefit agricultural land, and parks can withstand occasional inundation. Floods in residential areas are considered hazardous due to the potential for injury and property damage. Business and commercial activities can be impeded by floods due to facility damage and access problems.

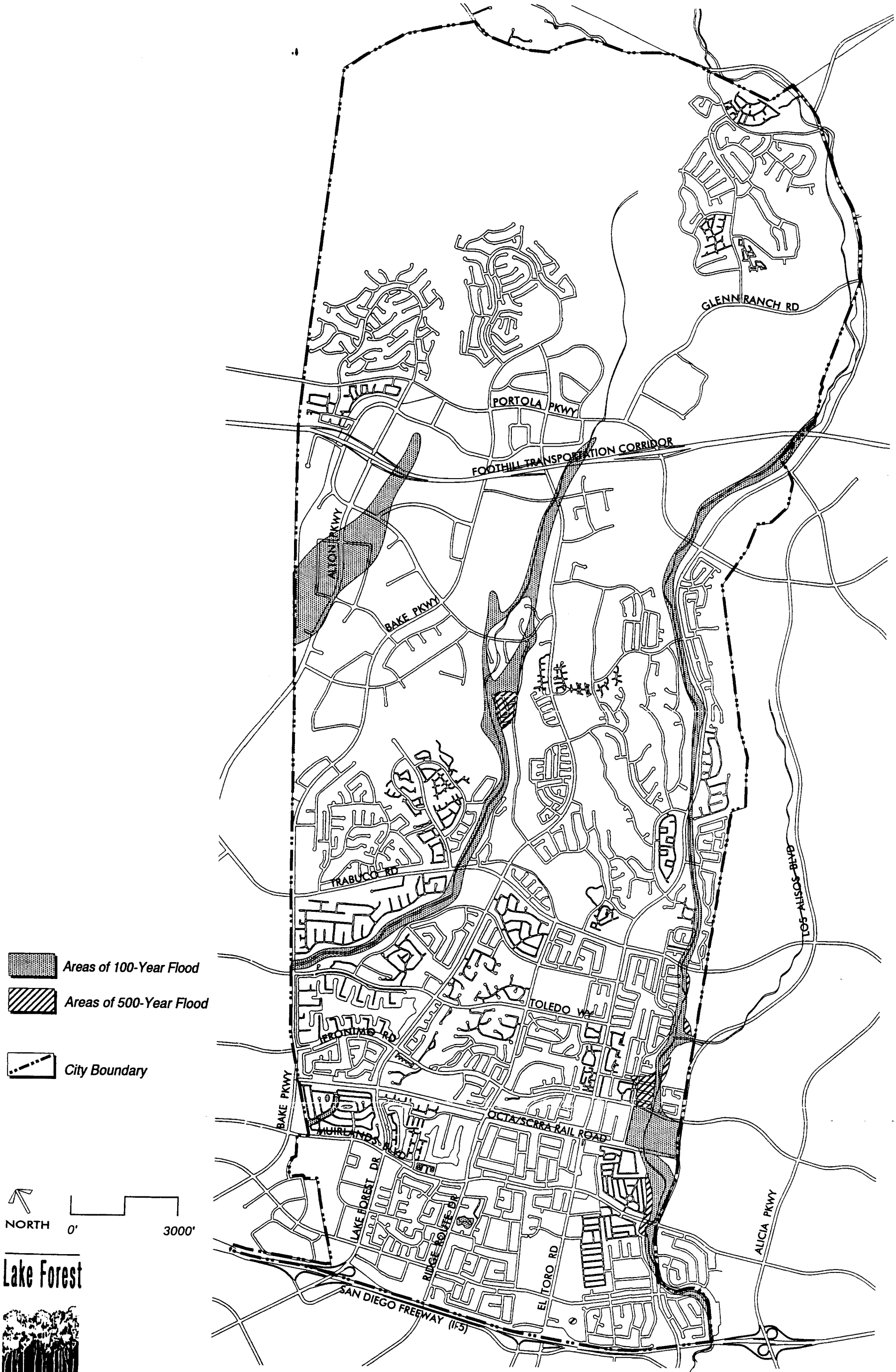
Lake Forest participates in the National Flood Insurance Administration (NFIA) program, which is administered by the Federal Emergency Management Agency (FEMA). The NFIA program provides federal flood insurance subsidies and federally-financed loans for property owners in flood-prone areas. To qualify for federal flood insurance, the City must identify flood hazard areas and implement a system of protective controls. Flood-prone areas in the Planning Area have been mapped by FEMA. Figure SN-1 shows the inundation areas for 100-year and 500-year floods. A 100-year flood means that a flood of this size has a one percent chance of occurring in a given year, and a 500-year flood means that a flood of this size has a 0.2 percent chance of occurring in a given year.

The City will continue to control development in the floodway and floodway fringe. Figure SN-2 shows the schematic diagram of the floodplain including the floodway and floodway fringe. Development will be prohibited in the floodway unless encroachment will not obstruct flows and increase flood levels.

In the floodway fringe, development encroachment will be permitted if the lowest floor of the structure is one foot above the highest estimated flood elevation.

A flood control system has been constructed to direct runoff away from developed areas and prevent flooding. Flood control deficiencies have been identified and improvements have been proposed. The Orange County Flood Control District (OCFCD) is the agency responsible for the

[1] General Plan Amendment 01-01A, dated July 17, 2001.

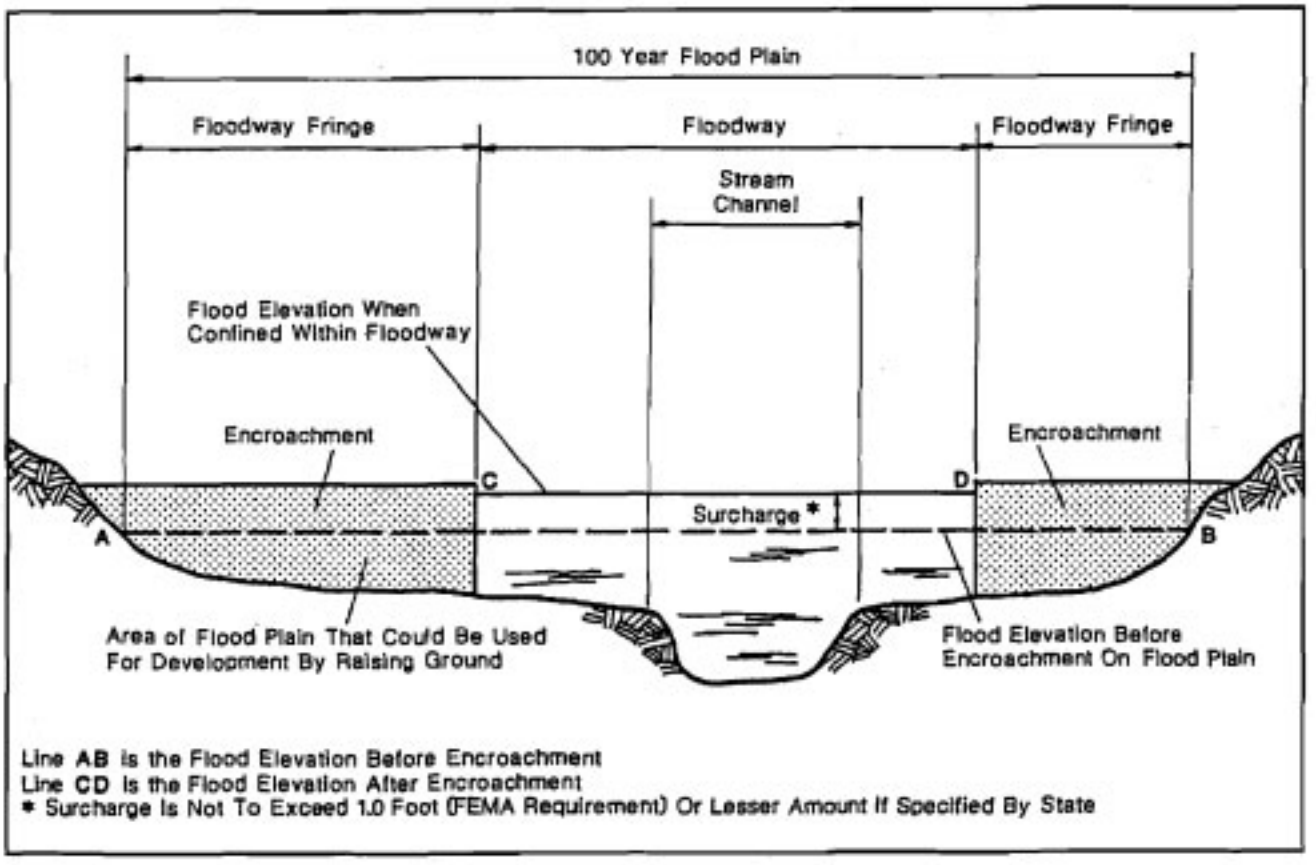


Lake Forest

General Plan

SOURCE: *Federal Emergency Management Agency, Flood Insurance Rate Map, 1989*

Figure SN-1
Flood Zones



Lake Forest General Plan

SOURCE: Federal Emergency Management Agency, 1986

Figure SN-2
Floodplain Schematic

regional drainage facilities while the City controls local facilities. The City will coordinate with OCFCD to ensure regularly scheduled maintenance of flood control channels and completion of necessary repairs. The City will also work with the district to identify needed improvements for new development projects.

Aircraft Overflight

The former MCAS El Toro, which is located north-west of Lake Forest, supported intense military aircraft activity while it was in operation. The flight pattern included air space above the central portion of the Planning Area.

The County of Orange is in the process of planning for commercial airport reuse of the former base which the City of Lake Forest opposes. No airport plan has been adopted by the County.[1]

Hazardous Materials

Hazardous materials are used in Lake Forest for a variety of purposes including manufacturing, service industries, small businesses, agriculture, medical clinics, schools and households. Many chemicals used in household cleaning, construction, dry cleaning, film processing, landscaping, and automotive maintenance and repair are considered hazardous. The production of common items such as television sets, newspapers, plastic cups and computers generate some hazardous waste. Accidents can occur in the production, transport, use and disposal of hazardous materials and threaten human and environmental health.

The City will work to minimize the accident and health risk from hazardous materials with the following approaches:

- Cooperate with federal, state and local agencies to effectively regulate the management of hazardous materials and hazardous waste;
- Cooperate with the County of Orange to implement applicable portions of the County Hazardous Waste Management Plan;
- Establish defined roadway transportation routes for the conveyance of hazardous materials (the City does not exercise jurisdiction over transportation of freight along railroad right-of-way); and
- Develop an emergency response plan for accidents involving hazardous materials.

In addition, a Household Hazardous Waste Program will be prepared. The purpose of the program is to protect residents from the use, transport and disposal of hazardous materials used in the home. The program will include public education about health and environmental hazards of household hazardous materials, and a program to periodically collect household hazardous wastes.

Fire

The Planning Area is subject to both wild and urban fires. The eastern portion of the Planning Area is contiguous with the Cleveland National Forest.[2] The regional natural vegetation is highly prone to wild fire. A fire in the national forest could spread to developed areas of Figure SN-3 illustrates the high fire hazard area. The urbanized portion of the Planning Area is also subject to structural fires.

The City will reduce the potential for dangerous fires by coordinating with the Orange County Fire Department (OCFD) to

[1]General Plan Amendment 00-01, dated May 2, 2000.

[2]General Plan Amendment 01-01A, dated July 17, 2001.

implement fire hazard education, fire protection and fuel modification programs. The current Uniform Fire Code will be used to reduce structural fire hazards. In addition, the City will work closely with the local water districts and the OCFD to ensure that water pressure is adequate for fire fighting purposes.

Ground Transportation

Lake Forest is traversed by a variety of transportation systems including Interstate 5, Foothill Transportation Corridor, major arterials and roadways and Orange County Transportation Authority (OCTA) rail line. The OCTA transit system provides bus service. The preponderance of ground transportation systems is an asset to local economic development but poses several potential hazards including automobile accidents, rail accidents and pedestrian accidents. Accidents can be avoided by properly maintaining the transportation infrastructure and correcting deficiencies. The City will work with the Orange County Sheriff's Department and California Highway Patrol to monitor the ground transportation system for hazardous situations. When safety problems are identified, the City will request the appropriate agency, (i.e., Caltrans, OCTA, SCRRA or City Public Works Department), to take corrective measures.

Crime Control

Criminal activity in Lake Forest is lower than in some other parts of Orange County, but has increased during recent years as more people have moved into the City. Burglary and petty theft are the most frequent crimes. The frequency of violent crimes, such as homicide, rape and robbery, is relatively low. Protecting citizens and businesses from criminal activity is a priority in Lake Forest. Crime prevention techniques include substantive levels of police protection, educating the public about methods to reduce criminal activity, and continuing the graffiti removal program.

Police protection is provided by the Orange County Sheriff's Department. The City will ensure that contracted staffing levels correspond to the City population and needs, and will monitor mutual aid agreements between the Orange County Sheriff's Department and the police departments of surrounding jurisdictions. Crime prevention programs will be implemented through Neighborhood Watch for both residential and business communities in conjunction with the Sheriff's Department. When property owners present development proposals, the City will encourage the use of defensible space and lighting concepts to deter on-site crime. Crime control techniques can also be built into new development projects.

The City graffiti removal and avoidance program has been very effective. The City will continue to administer the program to maintain aesthetic quality and deter gang activity.

New Development

Public safety hazards can be most effectively reduced during the development process. Much of the vacant land in the Planning Area is governed by a Planned Community and related Development Agreement. Prior environmental documentation for the Planned Communities may require mitigation measures for potential hazards. To ensure that the mitigation measures are properly implemented, development proposals and amendments within Planned Communities will be reviewed for consistency with the prior environmental documentation.

SOURCE: Cotton/Beland/Associates, Inc., 1994

Figure SN-3
Area of Fire Hazard

Development proposals for sites outside of Planned Communities will be reviewed for potential hazards pursuant to the California Environmental Quality Act. The following conditions will be assessed and mitigation measures will be required to ensure public safety:

- Steep slopes, unstable geologic materials and faulting;
- Flooding;
- Brush and structural fires, water pressure for fire fighting purposes;
- Aircraft overflights;
- Hazardous materials use, transport, storage and disposal; and
- Ground transportation hazards (rail and roadway system).

EMERGENCY PREPAREDNESS

While the City will aggressively implement programs to protect public safety, a modest potential for a catastrophic event will still exist. The best strategy to minimize human suffering and property damage is to establish and maintain an Emergency Preparedness Plan. The purpose of the Emergency Preparedness Plan is to respond to emergency situations with a coordinated system of emergency service providers and facilities. Local Emergency Preparedness Plans serve as extensions of the California Emergency Plan and Emergency Resource Management Plan.

The City of Lake Forest will prepare and maintain an Emergency Preparedness Plan. The Plan will identify resources available for emergency response and establish coordinated actions plans for specific emergency situations and disasters including earthquake, fire, major rail and roadway accident, flooding, hazardous materials incident, civil disturbance, nuclear attack and accident at San Onofre Nuclear Generating Station.

To support the Emergency Preparedness Plan, the City will support a high level of multi-jurisdictional cooperation and communication for emergency planning and response management. Private individuals and organizations will be solicited to enhance local communication and response with cellular telephones, ham radios, AM/FM radio and cable television. Effective emergency response also requires vital facilities such as hospitals, fire stations and communication centers to be functional during disasters. The City will work with emergency providers to ensure that vital facilities are designed and operated to remain functional.

Educating residents and businesses about potential disasters and the Emergency Preparedness Plan can increase the effectiveness of emergency response efforts. An educated public will know how to prevent injury and property damage during and after emergency episodes and know how to find help. The City will work to educate residents and businesses about appropriate actions to safeguard life and property during and immediately after emergencies. Education about emergency preparedness can occur through the distribution of brochures, presentations to civic groups and homeowner associations, and instruction in local schools.

NOISE AND LAND USE PLANNING

Noise in the Planning Area is the cumulative effect of noise from transportation activities and stationary sources. Transportation noise refers to noise from automobile use, trucking, airport operations and rail operations. Non-transportation noise typically refers to noise from stationary sources such as commercial establishments, machinery, air conditioning systems, compressors and landscape maintenance equipment. Regardless of the type of noise, the noise levels are highest near the source and decrease with distance. Noise is problematic when noise sensitive land uses

are affected. Noise sensitive land uses, defined as activities that are interrupted by noise, include residences, schools, hospitals, religious meetings and recreation areas. Most noise impacts can be avoided when noise sources, sensitive land uses and information about the future noise environment are considered in land use planning and development decisions.

The noise environment for the Planning Area can be described with noise contours based on the major noise sources. Noise contours define areas of equal noise exposure. Future noise contours have been estimated with information about existing and projected development and transportation activity. Figure SN-4 shows the projected noise contours for the Lake Forest Planning Area.[1] The assumptions and methods used to develop the contours are explained in detail in the City Master Environmental Assessment.

Noise Standards and Land Use Compatibility Guidelines

To ensure that noise producers do not adversely affect sensitive receptors, the City will use land use compatibility standards when making planning and development decisions. Table SN-2 summarizes City noise standards for various types of land uses. The standards represent the maximum allowable noise level and will be used to determine noise impacts. The noise standards act as City policy for acceptable noise levels for development.

The noise standards are the basis for the development of land use compatibility guidelines, which are presented in a matrix in Table SN-3. The primary purpose of the noise/land use potential conflicts between proposed land uses and the existing and future noise environment. If the noise level of a project falls within Zone A or Zone B, the project is considered compatible with the noise environment. Zone A implies that no mitigation will be needed. Zone B implies that minor soundproofing of the structure may be needed to meet the City noise standards. The project proponent will be required to demonstrate that the noise standards will be met prior to project approval.

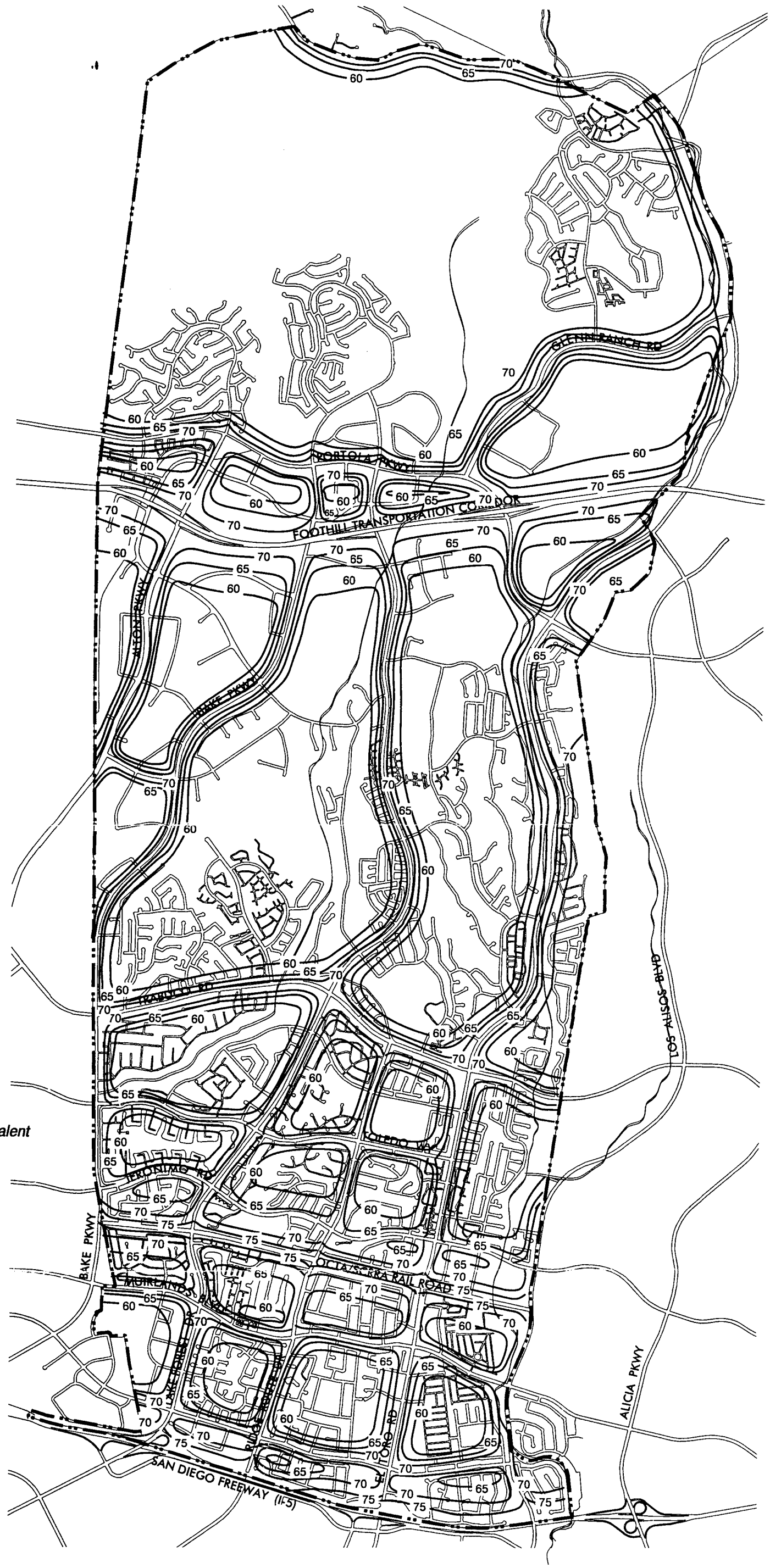
If the noise level of a project falls within Zone C, substantial noise mitigation will be necessary to meet the noise standards. Mitigation may involve construction of noise barriers and substantial building sound insulation. However, projects in Zone C can be successfully mitigated. The project proponent must demonstrate that the noise standards will be met prior to issuance of a building permit. If the noise levels falls outside of Zones A, B and C, the project is considered clearly incompatible with the noise environment and should not be approved.

The City Community Development Department will act as the noise control coordinator. This delegation of responsibility will allow consistent and continued enforcement of the established noise standards.

Noise Impact Areas

The noise contours will be used as a guide for land use and development decisions. The 60 dB CNEL defines Noise Impact Areas. When noise-sensitive land uses are proposed within the 60 dB CNEL or greater contour, an acoustical analysis must be prepared. For the project to be approved, the analysis must demonstrate that the project is designed to attenuate noise to meet the City noise standards, as defined in Table SN-2. If the project is not designed to meet the noise standards, mitigation measures can be recommended in the analysis. If the analysis demonstrates that the noise standards can be met with implementation of the mitigation measures, the project can be approved with the mitigation measures required as conditions of project approval.

[1] General Plan Amendment 00-01, dated May 2, 2000.



Lake Forest

General Plan

SOURCE: J.J. Van Houten and Associates, October 1993

Figure SN-4
Future Noise Contours

TABLE SN-2
INTERIOR AND EXTERIOR NOISE STANDARDS

Land Use	Noise Standards[1]	
	Interior[2,3]	Exterior
Residential - Single family, multifamily, duplex, mobile home	CNEL 45 dB	CNEL 65 dB[4]
Residential - Transient lodging, hotels, motels, nursing homes, hospitals	CNEL 45 dB	CNEL 65 dB[4]
Private offices, church sanctuaries, libraries, board rooms, conference rooms, theaters, auditoriums, concert halls, meeting halls, etc.	Leq(12) 45 dB(A)[6][2]	-
Schools	Leq(12) 45 dB(A)	Leq(12) 67 dB(A)[5]
General offices, reception, clerical, etc.	Leq(12) 50 dB(A)	-
Bank lobby, retail store, restaurant, typing pool, etc.	Leq(12) 55 dB(A)	-
Manufacturing, kitchen, warehousing, etc.	Leq(12) 65 dB(A)	-
Parks, playgrounds	-	CNEL 65 dB[5]
Golf courses, outdoor spectator sports, amusement parks	-	CNEL 70 dB[5]

NOTES

(1) CNEL: Community Noise Equivalent Level.
Leq(12): The A-weighted equivalent sound level averaged over a 12-hour period (usually the hours of operation).

(2) Noise standard with windows closed. Mechanical ventilation shall be provided per UBC requirements to provide a habitable environment.

(3) Indoor environment excluding bathrooms, toilets, closets and corridors.

(4) Outdoor environment limited to rear yard of single family homes, multifamily patios and balconies (with a depth of 6' or more) and common recreation areas.

(5) Outdoor environment limited to playground areas, picnic areas, and other areas of frequent human use.

(6) Religious institutions (Churches, temples, and other places of worship) of a small size (occupancy) of 100 persons or less) may occupy existing buildings within areas of exterior noise levels ranging from 65 to 75 dB CNEL without providing additional noise insulation for the building.

Source: J.J. Van Houten & Associates.

[1] General Plan Amendment 94-01 - dated July 11, 1995.

TABLE SN-3
NOISE/LAND USE COMPATIBILITY MATRIX

LAND USE CATEGORIES	COMMUNITY NOISE EQUIVALENT LEVEL CNEL						
	55	60	65	70	75	80	
Residential - Single Family, Multi-family, duplex	A	A	B	C[1]	C		
Residential - Mobile homes	A	A	B	C	C		
Transient Lodging - Motels, Hotels	A	A	B	B	C	C	
Schools, Libraries, Churches, Hospitals, Nursing/Convalescent Homes, Preschools, Day Care Centers(1)[2]	A	A	B	C	C		
Auditoriums, Concert Halls, Amphitheaters, Meeting Halls	B	B	C	C			
Sports Arenas, Outdoor Spectator Sport, Amusement Parks	A	A	A	B	B		
Playgrounds, Neighborhood Parks	A	A	A	B	C		
Golf Courses, Riding Stables, Cemeteries	A	A	A	A	B	C	C
Office and Professional Buildings	A	A	A	B	B	C	
Commercial Retail, Banks, Restaurants, Theaters	A	A	A	A	B	B	C
Industrial, Manufacturing, Utilities, Wholesale, Service Stations	A	A	A	A	B	B	B
Agriculture	A	A	A	A	A	A	A

Zone A - Normally Acceptable - Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.[1]

Zone B - Conditionally Acceptable - New construction or development should be undertaken only after detailed analysis of the noise reduction requirement is made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.

Zone C - Normally Unacceptable - New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.[1]

Notes: (1) Religious institutions (Churches, synagogues, temples and other places of worship) of a small size (occupancy of 100 persons or less) may occupy existing buildings within areas of exterior noise levels ranging from 65 to 75 dB CNEL without providing additional noise insulation for the building.
(2) Shaded areas indicate new construction or development should generally not be undertaken.
Source: J.J. Van Houten & Associates

[1] General Plan Amendment 95-01 - dated May 16, 1995.

[2] General Plan Amendment 94-01 - dated July 11, 1995.

Construction Standards

The provisions of the state Noise Insulation Standards (Title 24) will be enforced in Lake Forest. Title 24 specifies that combined indoor noise for multi-family living spaces shall not exceed 45 dB CNEL. This standard must be implemented when the outdoor noise level exceeds 60 dB CNEL. The noise contour map (Figure SN-4) can be used to determine when to implement the standard. Title 24 requires that the standard be applied to all new hotels, motels, apartment houses and multi-family projects. The City will also apply the standard to new single-family development and condominium conversion projects as a matter of policy.[1]

TRANSPORTATION NOISE

Noise from transportation activity is the primary component of the noise environment in Lake Forest. Transportation noise is related to the transportation corridors that traverse the Planning Area, such as Interstate 5, Foothill Transportation Corridor, major arterials and collector roadways, and the Orange County Transportation Authority (OCTA) railroad.[2] The most efficient and effective means of controlling noise from transportation systems is to reduce the noise at the source.

The City has little direct control over noise produced by transportation sources because state and federal noise regulations preempt local regulations. The state regulates motor vehicle noise.[3] Because the City cannot control noise at the source, City noise programs focus on reducing the impact of transportation noise on the community. Cost effective strategies to control noise impacts are an essential component of this element.

The most effective method for mitigating transportation noise impacts on the community is by utilizing the site design review process and CEQA. During these stages of the development process, potential impacts from transportation noise will be identified and mitigation measures will be required as needed to meet City noise standards. Site planning, landscaping, topography and the design and construction of noise barriers (walls, berms or combination of walls/berms) are the most common method of alleviating traffic and train noise impacts. Setbacks and buffers can also be used to achieve small noise reductions.

Noise attenuating barriers are commonly incorporated into projects and can be extremely effective in reducing noise levels. The effectiveness of the barrier depends on the relative height and materials of the barrier, the noise source, the affected area, the horizontal distance between the source and the barrier, and the horizontal distance between the barrier and affected area. Although noise barriers can be extremely effective, the aesthetic effect of barriers on neighborhoods should be considered.

Noise barriers should be included in the design of roadway, freeway and rail improvements. The City will support efforts by Caltrans, Orange County Transportation Authority, SCRRA and other transportation providers to provide acoustical protection for noise-sensitive development. In addition, the City will request that barriers are constructed as part of freeway, roadway and rail improvement projects to mitigate significant noise impacts. In particular, Interstate 5 and the Foothill Transportation Corridor are prime candidates for barriers to protect the community from excessive transportation noise. Although the City does not have jurisdiction over railroad operation, maintenance, and construction activities

[1] General Plan Amendment 00-01, dated May 2, 2000.

[2] General Plan Amendment 00-01, dated May 2, 2000.

[3] General Plan Amendment 00-01, dated May 2, 2000.

occurring within the OCTA right-of-way, SCRRA will also be requested to construct noise barriers adjacent to existing unprotected residential areas adjacent to the railroad.

Noise Control at the Source

The California Vehicle Code contains noise regulations pertaining to the operation of all vehicles on public roads. These noise standards for cars, trucks and motorcycles will be enforced through coordination with the California Highway Patrol and Orange County Sheriff's Department. The City will also regulate traffic flow and coordinate with the Orange County Sheriff's Department to enforce speed limits to reduce traffic noise. Truck and bus noise will be minimized by periodically evaluating and continually enforcing established routes to avoid noise impacts on sensitive receptors. To reduce the production of rail noise, the City will encourage SCRRA to continue to use welded track in good repair within the Planning Area.[1]

NON-TRANSPORTATION NOISE

Sensitive receptors must also be protected from excessive noise generated by non-transportation sources such as commercial and industrial centers, restaurants and bars, religious institutions and civic centers. Application of the City Noise Ordinance is the best means to control noise from existing noise sources. Noise generated by new development will be effectively controlled through the site design review process and CEQA, and compliance with the City Noise Ordinance. During these preliminary stages in the development process, potential noise impacts will be identified and mitigation measures can be imposed.

When reviewing proposed non-residential projects, noise generation and potential impacts to surrounding development will be considered. Acoustical analyses will be required for projects that will generate noise potentially affecting sensitive receptors. Where significant impacts are identified, mitigation measures will be required. The following mitigation measures could be applied when reviewing proposed projects:

- **Furnaces** - Acoustically treat natural draft and/or forced draft units and combustion air intake plena. Insulation of firing walls and damped and lined ducting are but a few of the treatments that could be considered.

- **Fans** - Air cooled heat exchangers can be provided with silencers where effective (i.e., primarily on small, high-speed air fans). For larger coolers, quieter equipment can be installed.

- **Motors** - Quiet-design motors can be employed and located to minimize impacts on nearby properties.

- **Centrifugal Compressors** - Centrifugal compressors can be equipped with inlet and discharge silencers. Acoustical enclosures may also be considered.

- **Centrifugal Pumps** - Centrifugal pumps may be equipped with suction and discharge piping that has been acoustically treated. Acoustical enclosures may be considered.

- **Steam and Gas Generators** - Acoustical enclosures for turbines may be effective in reducing noise. Inlet and discharge piping may be acoustically treated and expansion joints added or comparable attenuative modifications made to minimize structure-borne vibrations.

- **Control Valves** - Quiet valves should be used whenever available. In other circumstances, in-line silencers can be employed.

[1] General Plan Amendment 00-01, dated May 2, 2000.

- **Atmospheric Vents, Exhaust and Intakes** - Noise vents should be equipped with silencers. Where safety is not an overriding concern, vents should be positioned close to the ground or below grade.

- **Paging Systems** - Loudspeaker paging systems shall be regulated pursuant to the City's noise ordinance. Whenever possible suitable alternatives such as radio or visual paging systems should be utilized.

- **Delivery/Loading Areas** - Limit delivery hours for stores with loading areas or docks fronting, bordering, or gaining access in driveways next to noise sensitive uses.

- **Operating Hours** - Restrict operation hours at night to minimize impacts to adjacent residential uses.

In addition, all City departments must comply with state and federal OSHA noise standards. Any new equipment or vehicle purchased by the City will comply with local, state and federal noise standards.

Noise Ordinance

The City Noise Ordinance is designed to protect people from non-transportation noise sources such as music, construction activity, machinery and pumps, and air conditioners. Enforcement of the ordinance ensures that adjacent properties are not exposed to excessive noise from stationary sources. Enforcing the Noise Ordinance includes requiring proposed development projects to show compliance with the ordinance, and requiring construction activity to comply with established work schedule limits. The Noise Ordinance does not apply to railroad operation, maintenance and construction activities occurring with the OCTA right-of-way or the permitted hours for such activities. The ordinance will be reviewed periodically for adequacy and amended as needed to address community needs and development patterns.